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Review Article

The Effects of Transitional Care on Quality-of-Life in Patients with Chronic Obstructive Pulmonary Disease: Literature Review

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Abstract

Chronic Obstructive Pulmonary Disease (COPD) is a major cause of morbidity and mortality across the world, and its prevalence continues to increase. Global mortality due to COPD is forecast to more than double in the latest 30 years, which results in an economic and social burden that is substantial and increasing over the past decade, and also imposes a significant burden in terms of disability and impaired quality of life. Patients with COPD suffer from high rates of exacerbation and hospital readmission after discharge, which places a high burden on the health-care system and reduces patient's health-related quality of life. So, transitional care is necessary after discharge. This paper reviews the scholarly literature with the following keywords: transitional care, continuity of care, discharge planning, care-coordination, follow-up after discharge and COPD to identify transitional care models which have been used successfully in patients with COPD, which include the definition and the contents of transitional care in detail, the research status and progress internationally are included. The effects of transitional care on the quality of life of patients with COPD are identified from the following aspects: the recurrence and hospitalization, patient's self-efficiency, satisfaction and compliance, lung function and psychological status and so on. As a form of transitional care model, the Omaha system helps to contribute to the improvement of the quality of life of patients with COPD. With the progress of modern society and the improvement of people's health needs, transitional care will become an important part of clinical nursing, especially in community.

Introduction

Chronic Obstructive Pulmonary Disease (COPD) is a common preventable and treatable disease, which is characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. Exacerbations and comorbidities contribute to the overall severity in individual patients [1]. COPD is a leading cause of morbidity and mortality across the world, and its prevalence continues to increase, which results in an economic and social burden that is substantial and increasing over the past decade [2], and also imposes a significant burden in terms of disability and impaired quality of life [3]. Global mortality due to COPD is forecast to more than double in the latest 30 years, which would make it the third leading cause of death worldwide by 2020 [4]. COPD places a burden on the health-care system and reduces patient's Health-Related Quality of Life (HRQOL) [5-6]. Patients with COPD are prone to exacerbations of their illness, which are characterized by symptoms of worsening dyspnea, cough, sputum production and sputum purulence, as well as by worsening of their airflow obstruction [7]. It is difficult to predict expected exacerbation rates for individual patients; however, most patients with moderate-to-severe COPD experience one to four exacerbations per year [8]. Exacerbations become more frequent with an increased severity of disease. According to current guidelines, stable COPD is managed using a combination of smoking cessation, pharmacological therapy, education, pulmonary rehabilitation, nutritional interventions, vaccinations, oxygen therapy and surgery. Usually, exacerbations occur out of hospital. Therefore, it is necessary to provide continuity of care for patients after discharge. Meanwhile, some researchers reported that these symptoms can be controlled by educating and supervising during transitional care in family after discharge [9].

This article reviews the scholarly literatures with the following keywords: transitional care, continuity of care, discharge planning, care-coordination, follow-up after discharge and COPD to identify transitional care models which have been used successfully in patients with COPD.

The Definition of Transitional Care

Transitional care is derived from a kind of follow-up in family for patients who were discharged, which is intended to provide effective and low-cost health services. The American Geriatrics Society [10] defined transitional care as: through a series of actions designed to ensure that patients could receive different levels of collaborative and continuous care in different health care settings (such as from hospitals to home) and the same health care settings (such as different departments of the hospital), which is accepted by the most scholars.

Contents of Transitional Care

Transitional care interventions were defined as those that employed one or more of the National Transitional of Care Coalition intervention categories: medication management, transitional plan, patient and family engagement or education, information dissemination, follow-up care, care provider engagement, or shared accountability

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across providers and organizations (National Transitions of Care Coalition, 2011). Nowadays, transitional care has been developed to carry out health education for all patients discharged from the hospital, providing a full range of health care service. The methods and contents include home visits, telephone follow-up, health education based on the network platform, the creation of expert outpatient, the establishment of transitional care units and the establishment of patients clubs etc.

The Research Progress of Transitional Care on Patients after Discharge

a. Transitional care has been developed to some extent in China; it has been used on different kinds of chronic diseases, such as diabetes mellitus, stroke, perinatal women and hypertension [11]. The form mainly includes home visits and telephone visit after discharge. In recent years, transitional care mainly aimed to women, children, the elderly and patients with chronic diseases after surgery in the department of orthopedics. At present, different levels of general hospitals have established a community health service network and bidirectional referral path, and some communities become one of the key elements of chronic disease management, such as hypertension, diabetes or other chronic diseases. In Hong kong, the team which take Huang jinyue as the leader conducted a series of researches and achieved good results [12-13]. To ensure that patients can get complete and continuous health care in different medical institutions after discharge, researchers in Taiwan carried out the post-discharge service to coordinate the use of integrated medical resources firstly [14]. The research and practice on transitional care in Mainland also had the preliminary development, and some hospitals made great contribution. Tongji Hospital in Wuhan developed free expert hotline for nurses and patients to provide outpatient health advice in 2006. Zhujiang Hospital of Southern Medical University and The First Affiliated Hospital of Jinan University established the post-discharge nursing service center in 2005 and 2007 respectively to carry out home visits and telephone follow-up services, which included obstetrics, neonatology, chronic disease management, hospice etc., to provide technical services and rehabilitation guidance [15]. In addition, several hospitals provide instruction card and the community rehabilitation guidance for patients discharged. They take family bed mainly to provide technical services in community, such as food instruction, medication compliance, function training, consultation time and guidance, prevention of complications and psychological counseling methods [16].

b. The transitional care model at abroad has developed multi-discipline coordination team which considered nurse as the core, and has achieved good social and economic benefits, which mainly include two models respectively based on community and hospital. The former refers to the family hospital and day hospital, and the latter refers to provide medical care services in family to replace the hospital process, the population pointed at patients with acute exacerbation of chronic disease but not yet fully recovered, especially chronic obstructive emphysema, chronic congestive heart failure and so on. Day hospital stems from the UK health care service system to provide self-care ability training, rehabilitation care services in the day for the elderly, or patients with pain and chronic diseases, in this system the senior specialist nurse as the leading, and physicians, physical therapists, nutritionist, and social workers, etc. are collaborated.

The Effects on Recurrence and Hospitalization, Patient's Self-Efficiency, Satisfaction and Compliance

COPD often have an acute exacerbation due to infection with slow onset and long course [17]. The main symptoms include chronic cough, expectoration, shortness of breath and wheezing or dyspnea, chest tightness. Even the patients with COPD in the late period will develop cachexia. Patients with COPD during the acute exacerbation have to be in outpatient department or hospitalized according to the severity of disease. In comparision, more patients choose to conduct continuous treatment in family during the stable period, which include health guidance, drug treatment, adhere to the respiratory function exercise and long-term home oxygen therapy etc. Acute exacerbation often contribute to adverse consequence, which may cause the decreased lung function, the reduction on quality of life, the continuous increase in mortality, as well as the increasing utilization of medical resources. Usually, exacerbations occur out of hospital. Therefore, it is necessary to carry out professional guidance and education for patients after discharge is very important.

Related studies have reported that symptoms can be controlled and supervised through transitional care. Several studies have showed that transitional care can reduce hospital re admissions [18-20], and among which one study showed that patients enrolled in the transitional home care program had significantly lower acute hospital utilization through the reduction of emergency department attendances and hospital admissions [21]. The clinical data of 60 patients in the hospital were retrospectively studied [22], patients in intervention group were given transitional care after discharge, meanwhile patients in the controlled group were given regular treatment and no longer took actions after discharge, and then compare the exacerbation rate between two groups. The rate in intervention group were significantly lower than the other, which concluded that transitional care can reduce the exacerbation rate and contribute to the improvement of the quality of life, which is worthy to be popularized clinically. A study proved that transitional care can effectively reduce the rate of outpatient visits and re-hospitalization [23]. Research Zeng [24] found that through twice telephone visit, the physical activity, mood fluctuations and CSES (General Self-Efficacy Scale) scores in intervention group were significantly higher than those in control group. Liu Hong [25] conducted a study through telephone follow-up, family visits and provided expert outpatient for patients with COPD, the CSES score of the intervention group were higher than the control group, which also proved that the continuity of care can effectively improve the patient's satisfaction and compliance, and even reduce the recurrence rate and hospitalization rate.

The Effects on Lung Function

Respiratory function exercise plays an important role in preventing the reduction of lung function of patients with COPD. Related researches showed that regular respiratory function exercise can improve the lung function of patients with COPD in stable period [26-27]. Respiratory function exercise is mainly refers to the lips and mouth breathing and abdominal breathing, this kind of exercise needs professional guidance and monitoring. Related studies [28] showed that, for patients during stable period, some drugs can improve the condition. In addition, respiratory function exercise is also conducive to improving the respiratory function, to correct the breathing difficulty, to

extend the intermittent time, and to improve the quality of life. A study suggest that the respiratory rehabilitation exercise training package reduced symptoms and enhanced the effectiveness of the care of elderly in patients with AECOPD [29]. Due to the limitation of medical resources in China, However, the shortage of nurses made it difficult for us to make follow-up for patients after discharge.

Xia Yulan [30] established the Department of Home Respiratory Rehabilitation Training Group, providing discharge guidance and respiratory function exercise guidance, to evaluate the pulmonary function through FEV1, FVC and FEV1/FVC to evaluate the activity tolerance and quality of life according to the 6-min walk test, the blood pressure and heart rate, blood oxygen content and Borg score, and found that transitional care can improve activity endurance, improve lung function and the quality of life. Wang Shaoling [31] observed one patient and conducted a follow-up by telephone visit and family visit also proved this viewpoint. Additionally, activity endurance, quality of life and self efficacy were improved after 6 weeks, and the number of rehospitalization within 1 years was significantly reduced from 6 to 2 per year, according to the study of Wang Caixia [32], in which 161 patients with mild to moderate COPD were given behavioral intervention, psychological intervention and health guidance. The patients with pulmonary function, respiratory problems, body mass index, 6-min walk test, daily living activity and life satisfaction index were proved effective during the process. Domestic scholars studied [33] that patients' respiratory muscle endurance were significantly improved after six weeks of 6-min walk test combined with abdominal breathing training, and related pulmonary symptoms were improved too, pulmonary function index (FEV1, 6MWT, FEV1/FVC, heart rate and finger vein oxygen) were also significantly improved. Yao Wenmei [34] explored the effects of respiratory training on the lung function of patients with COPD, 70 patients were guided to do contraction lips breath and abdominal breath for 6 months, FEV1/FVC and other indexes were significantly improved too.

The Effects on Psychological Status

COPD is not only physical disease, but may lead to mental illness, which can be identified by many researches. Von Leupoldt Andreas and Kenn Klaus [35] reviewed the psychology of patients with COPD, which demonstrated that high levels of anxiety and depression is considerably related to worse course of disease. Moreover, anxiety and depression often remain undetected and untreated in patients with COPD. The research about the psychology of patients with COPD deserved further exploration. The related factors mainly include the following aspects: the severity degree of disease, the grading of disease, age, social support and family income. Some studies identified that a variety of inflammatory cells participated in COPD can not only aggravate airway inflammation, but can aggravate depression and anxiety by affecting the brain area dominated by emotion. And some drugs (such as corticosteroids, aminophylline) can also aggravate negative emotions like depression and anxiety. These emotions contribute to physical symptoms and clinical manifestations, influence rehabilitation training and treatment effects, and further lead to poorer quality of life, which is a vicious circle.

Some researches provided follow-up service to promote communication between nurses and patients to improve negative emotions of patients. They set up a telephone hotline to patient's consultation and encourage them to do emotional relaxation exercises. Apart from these, they also actively mobilize the social support, such as family, relatives or friends, to improve patient's psychological satisfaction, establish self-confidence to fight against disease [36]. In addition, patients with COPD are mainly the family's economic pillars, they cannot continue to work due to the change of health status and thus produce anxiety and depression emotions. Therefore long-term psychological intervention and guidance is needed to assist them to adapt to chronic diseases and take positive attitude towards disease [37]. Professor Al-Gamal [38] of Jordan University explored the relationship between anxiety, depression and quality of life on patients with COPD, and found that the higher the degree of anxiety and depression, the lower the quality of life on patients, the relationship between them promotes nursing workers to gradually make a shift to provide home care, concentrate on patients' psychological status to improve the quality of life on patients with COPD. Liu Lei [39] studied 110 COPD patients, classified them into two groups randomly. Patients in the intervention group was followed-up by telephone, and those in the control group were treated with regular care, the research finally found that the quality of life on patients in the intervention group was significantly higher than that in the control group, and the degree of psychological anxiety was significantly lower than the other. Researcher's [40] studied 102 patients with COPD, among them fifty patients were treated with health education in family, and found that the rate of rehospitalization, the number of smoking patients and self assessment tests in the health-education group were lower than those in the control group, and the level of self management and family function were significantly higher than those in the control group. It proved that health education in family can effectively improve the self-management level and family function of patients with COPD. Dyspnoea 12 scales, Hospital Anxiety and Depression Scale were used to evaluate the relationship between respiratory depression and anxiety, which showed that the level of dyspnea and anxiety/depression were positively correlated. Moreover, the study pointed out the necessity of family continuity care and the future development direction which is based on the center of family [41].

Application of Omaha System Based on COPD

Omaha [42] is a standard nursing system which is recognized by North American Nursing Association, and it is a comprehensive system which is based on a framework aimed to solve the problem procedure. It consists of 3 parts, which is composed of the classification system, the intervention system and the effect system. Problem classification system includes 42 health problems in 4 areas: environment, psychological, social, physiological and health related behaviors. Intervention system divides the nursing intervention into 4 categories: health education, guidance and consultation, treatment and procedure, case management and monitoring. The problem score of effectiveness is a 5 point scale, which is a comprehensive evaluation of the 3 aspects of cognition, behavior and status of patients. Qu [43] demonstrated the application effectiveness through a randomized controlled experiment on elderly patients with COPD in community. They classified 190 patients into two groups. Omaha system was considered as the guiding ideology in the intervention group to take a series of measures for 12 months, and people in the controlled group conducted regular health-education. After 12 months, the lung function condition in the intervention group apparently better than that the controlled group. Meanwhile, the respiratory limitations and the disease condition were significantly lower than the other group. Then we can conclude that the Omaha system make a

great difference on lung function and quality of life, and a practical and feasible foundation was provided for transitional care in community. Researcher Zheng [44] conducted a study to identify the effectiveness of case management nursing model in clinical which considered the Omaha system as the framework. The researcher classified 90 patients into two groups, regular nursing was given in one group, and case management nursing model was given in the other group, then made a comparison about the improvement of lung function and the quality of life between two groups. The study found that the case management nursing model can not only improve lung function and respiratory function, but also improve the quality of life of patients with COPD. This result provided a new way of thought for regular nursing.

Omaha system not only provides nurses with an effective tool to collect, collate, record and analyze data of patients, but also guide them to carry out a comprehensive assessment, to correctly diagnose the health problems and give effectiveness assessment aimed the problem. In addition to regulate the quality of nursing documents, Omaha system is conducive to control and improve the quality of care [45]. Therefore, Omaha system could be applied to the evaluation of transitional care on patients with COPD, which contribute to improve the quality of life and the quality of care.

The Outlook

Extensive use of network platform to carry out transitional care service

In developed countries, using the network platform to carry out remote medical consultation service and health education has become a common approach, the use of convenient and efficient network services should be one of the best ways to carry out transitional care in the future. Especially in China, the shortage of nurses and medical resource, we'd better make full use of high-tech to strengthen the relation between hospitals and community, then to provide better guidance for patients with COPD and their family.

The establishment of patient clubs

We need to mobilize social power to restore the confidence for life of patients with COPD, since patients must confront disease firstly before they accept it. Medical personnel, patients, family members, community volunteers together participate in the organization to hold activities, make some panel discussions on COPD (such as the diagnosis, treatment, rehabilitation, self-care organization), carry out knowledge contest, exchange the experience, provide support and share the success or distress, which may have a positive effect on the rehabilitation of patients.

Standardize the content and operation process of transitional care

At present, the implementation of transitional care on COPD in domestic is still not optimistic, the ability of the staff participated in the work is uneven, there are not relevant guidelines for the content and process, which is bound to reduce the satisfaction of discharged patients. Therefore, we should strengthen the training of professional nursing staff who participate in the process in future, and develop standardized nursing content and process, so that we can ensure the work to achieve the desired results.

Conclusion

Transitional care is based on the theory of humanistic concern and the holistic nursing theory, which aims to meet the needs of patients discharged from hospital, it makes the professional nursing no longer confined the hospital, but extended to continue treatment and rehabilitation after discharge. With the progress of modern society and the improvement of people's health needs, transitional care will become an important part of clinical nursing, especially in community.

From the current research on transitional care model, we can conclude that the application development of transitional care model on patients with COPD in China is still not perfect, and there is no definite index to evaluate the quality of life of patients. The current evaluation index is focused on the number of acute exacerbation, patient satisfaction and compliance of respiratory function exercise. With the further improvement of social health requirements, the requirements of transitional care will be increased, but transitional care in our country started up late, so we would learn advanced experience from foreign countries and considered this model as a part of clinical nursing.

From the existing researches, we concluded that the psychological status of patients and their caregivers significantly affected the prognosis of COPD. In comparison, the development of foreign transitional care is already mature, which focused more on the psychological status of patients and their caregivers, and the development direction of transitional care in our country should pay more attention to psychological care of patients and their caregivers. In addition, transitional care in our country still concentrated on the home care, and the role of nursing has not been fully played in community. In future, community care will become a trend of transitional care.

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